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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/609,567 | 06/30/2000 | Robert D. Bateman | 042390.P9220 | 2886 |

7590 11/19/2002

Kenneth M Seddon
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EXAMINER

THAI, TUAN V

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 11/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/609,567

Applicant(s)

BATEMAN, ROBERT D.

Examiner

Tuan V. Thai

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2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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PART III

RESPONSE TO AMENDMENTS

1. This action is responsive to communication filed on September 09, 2002. This amendment has been entered and carefully considered. Claims 1-22 are again presented for examination.
2. The rejection of claims 1-22 in the Office Action mailed May 08, 2002 (paper # 3) is respectfully maintained and reiterated below for Applicant's convenience.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1-22 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tischler et al. (US 2001/0049771); hereinafter Tischler.

As per claims 1-3, 5 and 8; Tischler teaches the invention

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as claimed including an apparatus and method for storing data in a cache comprising prioritizing locked way of the cache higher than a recently used way; storing data in the LRU way, reading/writing data from/to a LRU way prior to prioritizing a locked way (e.g. see page 5, first column, last paragraph bridging first paragraph of second column);

As per claim 4, locking at least one way of the cache to provide the locked way (e.g. page 5, first column, next to last (fourth) paragraph);

As per claims 6 and 7; Tischler discloses Mode88 is assumed to be invoked by the contents of register 184 (toggling/resetting register bits) therefore to permit either CPU 136 or graphics unit 138 to replace data in any of the unlocked eight Ways in the cache 140 (e.g. see page 5, first column, third paragraph);

As per claims 9-10, locking a first/second ways (multiple ways), and prioritizing the locked way higher than additional lock way is taught by Tischler as the L2 controller 176 including circuitry to lock down the eight Ways (Way0-Way7) independent of one another on a cache line basis, for example, locking cache lines in Way0 is reserved for use by the CPU 136 and locking cache lines in Way7 is reserved for by the graphics unit 138 (e.g. see page 5, first column, fourth paragraph);

As per claims 11-12; setting bits in register to indicate priority of the locked way is embedded Tischler and being taught

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to the extent that it is being claimed; for example, as detailed above in claims 6 and 7; Tischler discloses Mode88 is assumed to be invoked by the contents of register 184 (toggling/resetting register bits) therefore to permit either CPU 136 or graphics unit 138 to replace data in any of the unlocked eight Ways in the cache 140 (e.g. see page 5, first column, third paragraph);

As per claim 13, Tischler discloses locking a first way of a cache, accessing a second way of the cache, accessing a third way of the cache, prioritizing the first way of the cache higher than the second way of the cache and writing data to the second way of the cache is being equivalent taught as Mode28 method permit the CPU 136 to replace data in ANY of the eight Ways that are not locked down while limiting the graphic unit 138 to replacement in only two of the eight Ways that are not locked down; it should be noted that while locking down one way of the cache (for example, way 1 as being claimed), and allowing access (writing) to other ways of the cache, one should realize that the way being locked (way 1) should have higher priority than the non-locking ways (e.g. see page 5, first column, first paragraph);

As per claim 14, setting bits in register to indicate priority of the locked way is embedded Tischler and being taught to the extent that it is being claimed; for example, as detailed above in claims 6 and 7; Tischler discloses Mode88 is assumed to be invoked by the contents of register 184 (toggling/resetting

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register bits) therefore to permit either CPU 136 or graphics unit 138 to replace data in any of the unlocked eight Ways in the cache 140 (e.g. see page 5, first column, third paragraph);

As per claims 15-16, writing data to the way that has most recently used/accessed is embedded in Tischler system since Tischler discloses locking down a way results to the way is never replaced regardless of the LRU indicator, in addition, writing/reading data to/from the LRU way would results to data incoherency (e.g. see page 5, first column, last paragraph);

As per claims 17-19 and 20-22, they encompass the same scope of invention as to that of claims 15-16, the claims are therefore rejected for the same reasons as being set forth above.

5. As per remark, in response to Applicant's counsel wherein the prior art of Tischler teach away from Applicant's current invention; again, first of all, it should be noted that while locking down one way of the cache (for example, way 1 as being claimed), and allowing access (writing) to other ways of the cache, one should realize that the way being locked (way 1) should have higher priority than the non-locking ways; in addition, even though Tischler discloses that locking down a Way means that the Way is never replaced regardless of the LRU indicator of that particular way; however, Tischler also discloses **many other forms of cache locking exist** which known to

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including of locking a specific way of the cache and maintaining the original replace/access status (e.g. LRU, MRU..) for that particular way (e.g. see page 5, first column, first paragraph bridging second column, third paragraph);

6. Applicant's arguments filed September 03, 2002 have been fully considered but they are not deemed to be persuasive.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

8. **Any response to this final action should be mailed to:**

Box AF

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

Hand-delivered responses should be brought to
Crystal Park II, 2121 Crystal Drive, Arlington.
VA., Sixth Floor (Receptionist).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is 703-305-3842.

The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays or e-mailed at ***tuan.thai@uspto.gov***;

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Matthew M. Kim can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900. The Official Fax Numbers for TC-2100 are:

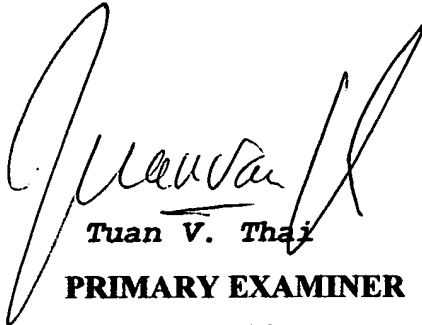
| | |
|----------------------------------|------------------------------|
| <i>After-final</i> | <i>(703) 746-7238</i> |
| <i>Official</i> | <i>(703) 746-7239</i> |
| <i>Non-Official/Draft</i> | <i>(703) 746-7240</i> |

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TVT/November 14, 2002



Tuan V. Thai
PRIMARY EXAMINER
Group 2100